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Committee on the Peaceful Uses of Outer Space

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Vienna

Chairman: Mr. Hohenfellner . . . . . (Austria)

The meeting was called to order at 3.05 p.m.

Report of the Scientific and Technical Subcommittee (A/AC.105/6057) *(continued)*

Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space *(continued)*

Mr. Boroffice (Nigeria): As this is my delegation's first opportunity to intervene at the session of the Committee, I should like to congratulate you, Mr. Chairman, on the successful start of the session.

My delegation notes with satisfaction the report of the Scientific and Technical Subcommittee on the work of its thirty-second session — in particular, the part on coordination of space activities within the United Nations system and inter-agency cooperation.

Several United Nations bodies are known to be running similar programmes and activities, and at parallel levels. Although such programmes and activities, like most of those whose purpose is to benefit developing countries, are well intended, information on them is not always available to such Member States sufficiently early to enable them to participate. It is my delegation's view that, in the interests of cost-effectiveness, improved participation, better implementation of the United Nations Programme on Space Applications and better coordination of space-related activities within the United Nations system, the Office for Outer Space Affairs should be recognized as the focal point for coordination of all such programmes and activities.

Therefore all bodies, especially those within the United Nations system, should endeavour to focus their programmes and activities on space application areas that would benefit the developing countries. I refer, for example, to the application of the technologies of remote sensing and the geographic information system (GIS) to the monitoring and the inventory of the natural resources of developing countries so that these resources could be used in a sustainable manner that would reduce over-exploitation and enable basic needs to be met.

On regional and interregional cooperation, my delegation is delighted to note the efforts being made by the Office for Outer Space Affairs to promote both regional and interregional cooperation, especially the mechanisms of such cooperation within the United Nations system. My delegation supports the spirit of regional and interregional cooperation, and Nigeria actively promotes this cooperation. Nigeria has continued to meet its financial and material obligations to the Regional Centre for Training in Aerospace Surveys at Ile-Ife, ensuring that the Centre carries out its programmes in an uninterrupted and sustainable manner.

In this connection, I wish to reaffirm Nigeria's interest in hosting the United Nations Centre for Space Science and Technology Education for the benefit of States members of the Economic Commission for Africa region. It is our view that, having met all the criteria for the establishment of such Centres, Nigeria should be offered the right to serve as host for the Centre in the African region.

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Permit me to state here that the Nigerian Government has ensured that both the human resources and physical facilities which were earlier pledged for the Centre, and which were validated by the United Nations Evaluation Mission, are available and ready for the take-off of the Centre within six months from the time a decision may be reached on the location of the Centre. The Government of Nigeria not only has made a financial commitment towards the realization of this Centre, but since 1994 has continued to make budgetary provisions towards the Centre. As potential host of the Centre, Nigeria is continuing its efforts to reach out to its sister member States within the region to ensure that adequate financial provisions are made and all other conditions are met to ensure that it serves the overall interests of all member States within the region and in a sustainable manner. In addition, our Government guarantees the autonomy of the Centre, as is the case with other regional and subregional centres hosted by Nigeria, and that its programmes will run uninterrupted.

It should be noted that in addition to the designated host institution — the Obafemi Awolowo University — there are five other universities actively engaged in research-related activities: the University of Lagos; Bayero University, Kano; the University of Nigeria, Nsukka; the University of Ibadan; the Federal University of Technology, Akure; and the Federal University of Technology, Minna. In addition, the National Agency for Science and Engineering Infrastructure, which has the national mandate for space science and technology, now has a full-fledged Department of Space Science and has recently established a National Remote Sensing Centre in Jos. Thus, there are adequate institutional infrastructures on the ground to ensure the smooth take-off of the Centre.

Mr. Maffei (Argentina) (*interpretation from Spanish*): At the outset, our delegation wishes to express its thanks to the secretariat for its preparation of document A/AC.105/605, the report on the work of the Scientific and Technical Subcommittee at its most recent session, in February.

At that session, the Argentine session played an active part in the various discussions on the agenda items and expressed its agreement with the final report prepared on that occasion. However, we feel that the time is right to refer again to some aspects which we feel deserve the most emphasis in the work of that Subcommittee.

As regards the question of space debris, we note with satisfaction that the inclusion of this item has led to a very fruitful exchange of technical opinions that will enable the international community to acquire relevant technical knowledge and data on this very acute problem. The work on this topic must be carried out in the most coordinated and structured way, and to that end, we wholeheartedly support the multi-year plan for 1996 to 1998 proposed by the Scientific and Technical Subcommittee.

As to the nature and utilization of the geostationary orbit, we reiterate our Government's position that the orbit is a limited natural resource and therefore requires the greatest possible attention of the international community, in particular in relation to the problem of the possible saturation of the orbit and the risk of accidents between communications satellites and space debris. We feel that any definition of the utilization of the geostationary orbit must maintain freedom of access and use in accordance with the concession of orbital positions established by the International Telecommunication Union.

On the United Nations Programme on Space Applications, my delegation wishes once again to express its gratitude for the important and valuable courses and seminars held in 1994. We believe that they are an appropriate means of spreading knowledge, technologies and experience in the field of space among all States, the developing countries in particular.

We are following with special attention the current negotiations on the establishment of the Centre for Space Science and Technology Education in the Latin American region. We hope that they will soon yield a satisfactory result.

As for the item on the use of nuclear power sources in outer space, we believe that the Principles adopted by the General Assembly on this subject are adequate and do not require any revision, at least until technical progress requires it. That is why we support the item's remaining on the agenda of the Scientific and Technical Subcommittee so as to attract every possible technical contribution on the subject that might affect the use of nuclear power sources in outer space.

Finally, the Argentine delegation wishes to refer to the initiative to convene a third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE). We participated actively in the discussions on this matter during the most recent session of the Scientific and Technical Subcommittee. Some uncertainties remain on the appropriateness of

convening the conference, and our delegation is willing to pursue a constructive dialogue at this session of the Committee on the Peaceful Uses of Outer Space with a view to seeking a final decision that includes all the specific positions and various goals of our countries. Only in this way can we be sure that, when we eventually take a decision to convene a third UNISPACE, it can be held in an efficient and productive way that will strengthen international cooperation in outer space.

Mr. Maclure (United States of America): My delegation would like to take this opportunity to address agenda item 5, "Report of the Scientific and Technical Subcommittee". Yet before commenting on issues in the Subcommittee my delegation wishes to express its deep appreciation for the distinguished service of Professor John Carver of Australia, who announced this year his intention to retire from his position as Chairman of the Subcommittee. Professor Carver provided admirable leadership for the Subcommittee in its deliberations on important issues in the peaceful uses of outer space. His presence will be missed.

With regard to issues in the Subcommittee, my delegation would like to make a few remarks concerning space debris and the proposed convening of a third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE), and then briefly to mention several recent United States activities in space that are of relevance to the work of the Subcommittee.

This year my delegation joined the consensus on a multi-year plan for the Subcommittee's work on the issue of space debris. This plan lays out a specific and deliberate schedule of work that will focus on the acquisition and understanding of data on the characteristics of the debris environment and will help establish the scientific and technical understanding necessary for any future action on debris. My delegation would like to reiterate its view that it is not appropriate at this time to move the discussion of debris into the Legal Subcommittee or to develop recommendations in the Scientific and Technical Subcommittee to underpin new legal norms. An adequate discussion of the scientific research in the field must be carried out and an adequate base of knowledge must be established within the Scientific and Technical Subcommittee before considering whether new legal norms should be developed.

Regarding the proposed convening of a third UNISPACE, the Subcommittee through its Working Group of the Whole discussed potential objectives, organization, and other means to achieve the goals of such a conference, and addressed additional ideas presented in the Working Group, including the contents of an "indicative agenda" for such a conference. The report of the Working Group sets out the varied views of all delegations, and in adopting the report the Subcommittee agreed that the report should provide the basis for continued discussions by the Committee.

My delegation has noted with great interest the papers prepared by the Secretariat and by Committee members on the possibility of holding a third UNISPACE. My delegation appreciates the effort to clarify matters relating to the organization of such a conference. Nevertheless, at this stage my delegation has several general concerns with convening a third UNISPACE, given existing international cooperative mechanisms and the severe financial constraints facing the United Nations and its Member States. UNISPACE 82 was a massive undertaking requiring significant expenditures of time and money for all those involved. When considering any goals and objectives of a third conference the Committee must recognize that the financial situation of its members and of the United Nations itself will be worse, not better, in the future, and must ask whether another conference of the form, scale and scope of UNISPACE 82 is absolutely necessary. In that regard, my delegation suggests that the Committee, at this juncture in its discussion, also consider alternative means to achieve goals and objectives that are of relevance to every member of the Committee.

My delegation would like to conclude its remarks on this agenda item by mentioning several recent United States activities relevant to space science and technology. To begin, in this year, which marks the fiftieth anniversary of the launching of the United Nations by the global community, my delegation is pleased to note that 1995 also marks the thirty-fifth anniversary of the launching of TIROS-1, the first polar-orbiting weather satellite, by the United States. With TIROS-1, the United States initiated the provision of meteorological satellite data via direct broadcast, and without charge, to ground stations world wide.

The United States also is pleased to announce last month's launch and insertion into geostationary orbit of GOES-9, the second of a new generation of geostationary satellites. This month, GOES-8 was declared operational; this marked the completion of the Extended Atlantic Data Coverage mission provided by Europe's Meteosat-3. The United States again would like to thank the European

Space Agency (ESA) and the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) for their assistance and contributions to geostationary satellite system continuity.

Finally, within the United States, the Departments of Commerce and Defense and the National Aeronautics and Space Administration (NASA) last month signed an agreement to create a National Polar-Orbiting Operational Environmental Satellite system under the lead civilian control of the National Oceanic and Atmospheric Administration (NOAA). As well, NOAA, NASA and the United States Geological Survey now share responsibilities for the Landsat programme, and progress continues in the development of Landsat-7, with spacecraft launch scheduled for late 1998. My delegation has materials available for Committee members interested in additional information on these and other United States satellite remote sensing programmes.

Mr. Fiuza Neto (Brazil): At the outset, my delegation would like to congratulate Mr. Abiodun on his statement on the activities of the United Nations Programme on Space Applications, an item of the agenda of the Scientific and Technical Subcommittee to which Brazil attaches great importance.

In this regard, the Brazilian Government has been paying due attention to the matter of the Regional Centres for Space Science and Technology. We are confident that intensive consultations between interested Governments and the secretariat will give us the much awaited go-ahead, so that the centre for the Latin American and Caribbean region can be established in the near future.

My delegation has consistently argued that the Office for Outer Space Affairs should be able to count on the means to carry out the important activities entrusted to it. In the absence of more substantial budgetary allocations for the space applications Programme, my delegation renews its call on all Member States, particularly the space Powers and other countries in a position to do so, to contribute generously to the Programme and to its commendable activities. In this context, I would like to emphasize that Brazil will continue to lend its support to the Programme through the offering of long-term scholarships.

I should like to touch upon some other important points discussed during the thirty-second session of the Scientific and Technical Subcommittee, held earlier this year.

The decision, contained in resolution 49/34, to give priority status to the question of space debris has been implemented most effectively by Member States. It is with great satisfaction that my delegation notes the significant progress made towards the achievement of consensus on this item, namely the adoption of a multi-year work plan and the decision to compile information on steps taken by space agencies towards mitigating potential damage caused by space debris.

This two-pronged approach allows for an early risk assessment of the current practices of space agencies on space debris, drawing on a gradually expanding knowledge base. I would suggest that this will naturally evolve into a debate of a juridical nature.

Regarding the question of inscribing the item on space debris on the agenda of the Legal Subcommittee, my delegation would like to respond to some remarks made yesterday concerning this sensitive issue.

As far as we can recall, no delegation has ever suggested inscribing the item on space debris on the agenda of the Legal Subcommittee with a view to drafting legislation immediately. We know that consideration of a legal framework for such a complex matter would require careful examination of a vast array of complex information that the Scientific and Technical Subcommittee has yet to obtain. Instead, what some delegations, including my own, have in mind is the possibility that the Legal Subcommittee, without prejudging the results of the Scientific and Technical Subcommittee's work, could initiate an exercise of defining preliminary parameters, which could be useful in a subsequent phase of eventual legal procedures.

Frankly, we do not see anything wrong with this idea. On the contrary, we believe that this exercise could prove helpful to the work of the Scientific and Technical Subcommittee.

Another advantage of the exercise would be that it would ensure that the international community was made aware of the depth of COPUOS' concern about the possibility of a major environmental disaster involving space debris. It has happened in the past — as publicly acknowledged here yesterday — and it could happen again. And legal liability instruments, as we know, address only the consequences, not prevention.

With respect to the debate on convening a third UNISPACE, I should like to praise the quality of the

report prepared by the Working Group entrusted with the task of clearly defining the remaining difficulties preventing the Scientific and Technical Subcommittee from moving on to the preparation of a well-focused agenda. Here again, my delegation allows itself a measure of optimism. As I observed during the general debate, the significant progress achieved during consideration of the item on space benefits shows this Committee's capacity to deal with the matter of international cooperation in an all-encompassing manner.

In conclusion, I should like to place once again on record a few words of gratitude to Mr. John Carver, as an expression of the awareness of the Brazilian delegation that the positive results achieved by the Scientific and Technical Subcommittee bear the indelible mark of his hard work and outstanding abilities.

Mr. Liu Daqun (China) (*interpretation from Chinese*): My delegation believes that in the past year considerable progress has been made on the various items on the agenda of the thirty-second session of the Scientific and Technical Subcommittee, and we express our appreciation for this.

We wish in particular to pay tribute to the Chairman of the Scientific and Technical Subcommittee, Professor Carver, who, during his long tenure in that post, made many important contributions to the peaceful uses of outer space. We thank also the secretariat for having prepared the report of the Subcommittee.

I wish now to comment on certain issues set forth in the report of the Subcommittee.

I will first comment on the United Nations Programme on Space Applications and the coordination of its space activities within the United Nations system.

As a result of global social and economic development, the international community's demand for the application of space technology is increasing. Since the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE II), held in 1982, numerous countries, as well as the relevant organizations of the United Nations, have made prolonged and tireless efforts to achieve the implementation of the Programme on Space Applications. The Chinese delegation values highly the role of the relevant United Nations organizations in this implementation. The Chinese Government has always actively supported and promoted the implementation of the United Nations Programme on Space Applications, as we believe that this has facilitated the strengthening of the application and exchange of space science and technology.

In 1994, the Chinese Government did a great deal of work towards implementing the Programme. For instance, that year China offered two one-year training fellowships, in the professional area, in photogrammetry and remote sensing, geodesy and cartography.

From 14 to 18 September 1994 the Chinese Government, in cooperation with the United Nations Office for Outer Space Affairs and the European Space Agency (ESA), organized a workshop on microwave remote sensing applications. This was attended by 81 representatives from 22 countries and international organizations. We discussed the development of microwave remote sensing technology and microwave applications, as well as sensor development. We also organized some technical visits, academic discussions, and so on, as our contribution in kind to the outer space applications Programme. China also covered the costs of accommodation and conference services for 19 representatives from developing countries. The workshop was a great success.

Then from 18 to 23 September 1994 China organized and hosted the ministerial conference on space applications for development in Asia and the Pacific, which was sponsored by the Economic and Social Commission for Asia and the Pacific (ESCAP). This was the first high-level conference in the Asia and Pacific region devoted to space technology applications. In total, there were 450 representatives and observers from various countries, of whom 49 were people of ministerial level. They came from 33 States members of ESCAP, three non-member States and 17 international organizations.

The Conference adopted three important documents: "Strategy for Regional Cooperation in Space Applications for Sustainable Development", "Beijing Declaration on Space Technology Applications for Environmentally Sound and Sustainable Development in Asia and the Pacific" and "Action Plan on Space Applications for Sustainable Development in Asia and the Pacific". The convening of this Conference will play a positive role for exchanges between various countries on application policies, plans for the coordination of space applications, the strengthening of cooperation in the region in respect of space matters, and the promotion of economically and socially sustainable development.

My second point concerns remote sensing of the Earth via satellite. The time between now and the end of the century is a critically important stage in China's historic process of modernization. At present China is pursuing a course of reform and is opening up in all directions to the outside world. Accordingly, its space activities will also witness greater development. China attaches great importance to the application and development of space technology. The emphasis in China's space programme for the near future is on the large-scale development of application satellites and satellite application technologies.

China's remote sensing satellite technology is developing very rapidly and has already been applied extensively in many spheres. Using remote sensing technology, we have done a great deal of work in the areas of surveying natural resources, monitoring the environment, preventing and mitigating natural disasters, and city planning. For instance, we use remote sensing technology to monitor the system that we have set up to make estimates in the field of food production.

The real-time transmission of aerial remote sensing is another very important scientific research project. This system is capable of processing the airborne radar images data and then transmitting them, via satellite, to the ground command centre, thus providing all-weather real-time monitoring of sudden natural disasters such as floods, earthquakes, forest fires and storms.

At the same time, we have utilized the anomaly means of satellite thermal infrared imaging in combination with other methods to predict earthquakes just before they occur. In addition, we have used meteorological satellite technology to monitor forest fires, and remote sensing techniques, in combination with other technologies, to investigate nationwide soil erosion. We have also set up a database for remote sensing and a geographical information system for the major cities. Work is also under way on the protection of farm land, using remote sensing investigation.

My third point concerns nuclear power sources in outer space. In recent years this has been an issue of concern to many members of the Committee. Many pieces of parallel research work are needed. The Chinese Government would like close attention to be paid to the question of the use of nuclear power sources in outer space. In this regard we are willing to cooperate with our counterparts in other countries.

My fourth point concerns space transportation systems. China's Long March 3A launch vehicle was developed on the basis of the Long March 3 series, using several advanced technologies. The carrying capacity on the geosynchronous orbit has risen from the original 1.4 tonnes to 2.5 tonnes. Long March 3A was used for successful launch missions on 8 February and 30 November 1994.

Fifthly, we note with pleasure the Scientific and Technical Subcommittee's adoption of the special theme "Application of space technology for education, with particular emphasis on its use in developing countries". The Chinese Government has always attached great importance to the use of space technology for education. Since July 1986 China has opened three satellite television education channels. There are 1,200 local education stations throughout the country, as well as 10,210 ground receiving stations and 66,000 video playing units. These make up a satellite television education network covering the entire land and all the off-shore islands of China.

We believe that the use of space technology for education is especially important to the developing countries. China has accumulated some experience in this area, and we are ready for cooperation in the further development and application of what has been achieved. We are willing to put our own experience and technology at the disposal of the developing countries.

My sixth point concerns the theme fixed for special attention at the Subcommittee's next session: "Utilization of micro- and small satellites for the expansion of low-cost space activities, taking into account the special needs of developing countries". We endorse that theme. The Chinese Government attaches great importance to the development and application of small satellites, and it has already done a great deal of work in the field of satellite research, development and application.

In the area of space physical exploration and astronomical observation, China has developed the "Practice" series of scientific experimental satellites. In the field of satellite communications, Chinese scientists have designed a programme for a mobile communication system to be composed of a satellite constellation at medium and high orbits; the mobile users of the system have a higher angle of elevation *vis-à-vis* the satellite, with fewer blocking objects on the ground, fewer satellites needed to cover the globe, and low cost.

In the area of Earth observation, Chinese scientists have also established a programme to set up a system of

Earth observation to be composed of seven small satellites. Research in this area is still in process.

As for the centre for space science and technology education in Asia and the Pacific region, as the Chinese delegation has noted, our Government attaches importance to and supports the establishment of such a centre. Although, in our view, there are some problems with the work of the Office for Outer Space Affairs concerning the selection of the location for the centre, we hope that the matter will be pursued from a positive angle. We believe that the centre should be open, not closed, and that it should be structured as a network, including several major nodes. Without the support of such nodes, the centre cannot operate smoothly. We are currently in discussion with the parties concerned, and the Chinese delegation reserves the right to comment further on the issue at another time.

Since UNISPACE 82, great progress has been made on the United Nations Programme on Space Applications and in the implementation of its various recommendations. Space technology is evolving rapidly, with new achievements being announced almost every day. International cooperation and exchanges have also developed apace. We endorse and support the convening of a third UNISPACE in order further to promote the exploration of space for the benefit of all mankind.

Mr. Chandrasekhar (India): I am grateful for the opportunity to address the Committee for the second time under agenda items 5 and 7, since they also deal with the subject of a third UNISPACE. I would ask the Committee to please bear with me, as my statement will be somewhat lengthy; I will try to keep it as brief as possible.

During the discussions in the Committee on the Peaceful Uses of Outer Space and its subsidiary bodies on matters related to the possible holding of a third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE), a few questions were posed. While there were many supporting arguments — a paper from India, a paper from Pakistan, a paper from the Group of 77, a compilation of reports from the secretariat, a report from the Scientific and Technical Subcommittee, many countries, particularly from developing nations, speaking in favour of the third UNISPACE — a few questions remain. My statement will therefore address these questions and provide some answers which our delegation thinks are the right ones. I believe that it will be useful for the consideration of the members of this Committee in the context of a third UNISPACE.

The first question is: Why can the objectives of this conference not be achieved through the regular sessions of COPUOS? Let us realize, first of all, that a significant number of United Nations Members are not members of COPUOS, while space activities concern all of them. In regard to several major initiatives of the past decade — Agenda 21 is an example — substantial benefits are to be derived from space activities in the protection of the environment, the management of natural disasters and the improvement of the quality of life in general on the planet Earth. An overall programme of cooperative actions, as well as issues related to the effective implementation of space activities by all nations, requires a forum like that suggested, in which both political commitments and proper awareness could be created at an appropriately high level. This cannot be achieved through the regular work of COPUOS.

Progress in the work of COPUOS over the years has been slightly slower. We believe that this is due to a lack of participation, even once every few years, by the leaders of space agencies and top policy makers. If the guidelines for major policies and international cooperative initiatives are set by the conference with the widest possible participation and at the highest possible level, the detailed charter for international cooperation could effectively be pursued later by COPUOS and its subsidiary bodies. If very new and fresh initiatives in space are to be taken, the COPUOS system does not provide an adequate forum, in view of the lack of participation of the top leaders who could decide on the issues.

Another question is: where is the substantive agenda for the conference? The various agenda items suggested by several nations have been documented and annexed to the report of the thirty-second session of the Scientific and Technical Subcommittee. These listed items indicate various substantial issues relevant to the future of international cooperation in the exploration and peaceful uses of outer space. However, it is possible to prune the agenda and focus it further. This could be taken up once a consensus on the third UNISPACE is reached in COPUOS.

There have been questions as to what will happen if the conference is not held. The growth of activities in outer space is very clearly dependent today on the success of space applications. Countries all over the world are not willing to spend money on space activities purely for the sake of the excitement of technology. The emphasis is mainly on economics. Space applications thus

hold the key for sustainable development and disaster mitigation and for bringing about considerable improvement in natural resources management, environment and quality of life in general.

Unfortunately, the key leaders of national development in various countries have not been well informed on space applications in these critical areas. Any emphasis that has been placed has been on communications, where space applications have made substantial progress. While growth of communications infrastructure, including related space systems, is very important, the very survival of humankind on this fragile planet is dependent on the preservation and proper use of the environment, which can only come about through the use of space. The opportunity is available for the space community at this stage, at a time when the recommendations of Agenda 21 are still fresh in the minds of political leaders. It will be lost if a conference is not held to develop concrete implementation means using space.

There have been some instances of developing nations facing the problem of being led by narrow commercial interests to very expensive space systems and uneconomical solutions. A third UNISPACE could provide for an objective and open forum in which the developing nations could gain better understanding of space systems that are relevant, competitive and economical for their needs. Through such an opportunity, space systems and applications would grow in the long run, and this would provide additional markets for developed countries.

The opportunities available for international cooperation in the field of the exploration and use of space for the common benefit of humankind would also be fewer in the absence of such a conference. On the other hand, holding the conference could result in providing a much needed impetus to international cooperation in space, at the present stage when its growth is highly desired.

The next question is whether there were any tangible results from the earlier Conference, and if not why there should be another UNISPACE. The earlier Conference brought out very clearly that developing nations have many unsatisfied needs. The needs were many and at the time of UNISPACE 82 the status of development of space in southern nations was quite low, which is why we came up with such a large number of recommendations. The very fact that over the last 13 years tremendous progress has been seen in the developing nations has been to the credit of the Conference, which motivated space leaders in developing nations.

That has been the experience of my country and, I am sure, of many other developing nations as well. However, in the changed context of technology and other factors, there are still tremendous potentials for applications, and these have to be reassessed. Certainly, if better results are to be achieved, there is a definite need further to motivate space leaders in developing nations and apprise them of newer developments in space and its applications. Hence, there is a need for a third UNISPACE.

The next question relates to the strong feeling that the recommendations of the earlier conference, UNISPACE 82, were very general, ill-defined and not pragmatic. If the recommendations of that Conference could not be fully implemented because of those factors, why talk of another conference? It is true, as I said earlier, that a large number of recommendations resulted from UNISPACE 82. Why? Once again, these were numerous in view of the fact that the then status of development of space activities in developing countries was not at a satisfactory level and hence it was necessary to take several steps to improve the situation. This resulted in the large set of recommendations. It is not fair to generalize by saying that the recommendations of UNISPACE 82 were ill-defined and not pragmatic. Even though it is true that all the recommendations could not be fully implemented, for several reasons, today the status of development of space, especially the space applications which are characterized by development of newer technologies, has brought about several low-cost approaches, and these hold the key for speedier growth of space activities in developing nations. Further, the impressive rate of economic growth in a number of developing nations in the recent past could increase the financial resources available for development programmes within those very nations. However, these are not being adequately deployed for beneficial space activities in view of lack of awareness and knowledge among the leaders of developing nations.

The time is ripe for the world space community to change and reverse the trend and establish the rightful role of space as an important tool for speedier development. Hence, there is a need for holding a UNISPACE III in order to bring about these changes. Collective assessment of the role of space in the context of changes in the international scenario over the past

decade, including the rapid changes in technology, and consideration of new opportunities for international cooperation warrant the holding of such a conference.

It is often asked what developed countries stand to gain. Most of the developed countries have been facing severe financial constraints on undertaking large-scale space projects. Why is this? Because they are not finding sufficient markets for their existing capabilities. Building awareness of the excitement and scientific value of space exploration on the one hand and of practical benefits of space to developing nations on the other hand, hold the key for developed nations to cash in on their capabilities. They could also make developing nations contribute to larger space exploration missions by motivating the leaders from developing nations, who should also be made aware of the practical benefits of space. Leaders of developing nations, in our view, would certainly be agreeable to spending part of their growing economic resources on space communications, natural-resource management, disaster mitigation and environment conservation. Obviously this would generate more business, and certainly good will.

There is a widespread perception that the programmes undertaken by the advanced countries are not sufficiently oriented to the needs of developing countries. The conference could also provide an opportunity to better harmonize space programmes with the needs of developing nations.

What would developing nations gain from such a conference? Increased awareness of the practical benefits of space technology and of the excitement of space exploration are the major gains that could be achieved through the holding of such a conference. More than this, the conference would provide a forum in which the space leaders of developing nations could debate the major space policy issues that influence progress towards achieving more benefits from space, including the preservation and use of the environment. With concerted efforts focused on the conference by developing nations, some of those issues could be resolved to the advantage of these nations.

Are there common benefits for both developing and developed nations? The most striking common benefit for developing and developed nations lies in sharing the excitement of the development and use of frontier technology for down-to-earth benefits, and in the exploration of the universe. More important, this would provide an opportunity for the growth of the world space infrastructure and for increased benefits. We are at a point where the trend is negative; we could reverse the process.

It is suggested by some that bilateral and regional forms of space cooperation hold the key for the future. In this context, why is another international conference necessary? Bilateral cooperation can only be very specific and to the mutual advantage of cooperating nations. Regional forums over the years have achieved good progress in increasing understanding of regional needs. But both bilateral and regional perspectives have considerable drawbacks in bringing about understanding and consensus among the entire world space community in promoting the peaceful uses of outer space for the benefit of all mankind. That is what we are supposed to do in COPUOS. Also there are issues such as the sharing of space benefits, geostationary orbit resources, and efforts regarding environment and global change which cannot be addressed by bilateral and regional forums alone.

There should be a thorough analysis of alternative mechanisms for achieving the goals of the Conference prior to the holding of the Conference.

The alternative forums for achieving the goals of the conference are the existing bodies such as this Committee and international symposiums and workshops organized at regional and international levels. Over the years, COPUOS has suffered from the lack of participation of leaders in space activities. The workshops and symposiums held by many organizations and space agencies have concentrated on scientific discussions, which alone cannot achieve the goals of UNISPACE. The fact that UNISPACE I and II provided an impetus for space activities testifies to the need to hold another conference, as does the fact that no other forum has broad enough participation or is equipped to deal with the agenda of such a conference.

We have been asked why we cannot assess the needs of the international community and then finalize the agenda of a third UNISPACE. The discussions that have taken place in this Committee over the last three years on such a conference have taken into account the needs and demands of many members, as well as non-members, of the Committee. However, during the preparatory phase of the conference the needs of the entire international community could be assessed in detail and, accordingly, agenda items could be fine-tuned. But to delay consensus on the principle of holding the conference until such an agenda is determined is a chicken-and-egg situation. The agenda could be prepared based on the information currently available and on the collective wisdom arrived at through discussions in this Committee.

The question of funding the conference also has arisen. Some have asked about the effects of a possible budget crunch. But the conference itself will be held in a host country that can handle a substantial part of the related expenditures. In addition, the United Nations system provides in its zero-growth budget policy for the holding of two major conferences every year, and UNISPACE could be one of them. For many delegations, the expenditure to be borne by the participating countries would not be very high compared to the cost of attending one of the Committee's meetings, and it would be a one-time expenditure only. The secretariat, in its document, has provided data on costs for us to discuss. If States do not believe they can afford to send delegations, certainly we can come up with some solutions, if this is the only stumbling block to the holding of such a conference.

It has been asked also if enough time has been allotted for the preparation of a thorough agenda. As I said earlier, certainly there will be a need to prepare the agenda thoroughly once the decision to hold the conference has been made. Such preparation, in our opinion, could begin then in earnest. To delay the decision itself much longer will ultimately leave only a very short time for preparation.

It has been pointed out also that mere recommendations arising out of a conference do not result in practical benefits unless they are implemented. Indeed, numerous conferences have had only limited practical benefits. How can UNISPACE III overcome this hurdle?

The key to ensuring the successful implementation of the recommendations is to produce very sharply focused recommendations and to achieve worldwide acceptance among leaders and Governments on the need to implement them. The recommendations of many conferences, workshops and symposiums are not properly carried out because of the lack of participation and acceptance by Governments at the highest level. This can be overcome by holding a conference of the type proposed for UNISPACE III.

Another question is whether international organizations and bodies such as the Committee on Earth Observation Satellites (CEOS), the International Astronautical Federation (IAF) and the Committee on Space Research (COSPAR) can achieve some of the goals of a UNISPACE conference. But such forums focus on scientific and technical matters; their memberships are limited; and their decisions are not necessarily accepted by the Governments of various nations. Hence the objectives of UNISPACE cannot be met through purely scientific and technical forums in which only professional institutions and individuals — and often they are the same; I am one of such individuals — participate, not Governments. However, these forums are essential during the preparatory and conference phases in increasing the efficiency of the conference itself and subsequently in assisting in the implementation of the ensuing recommendations.

Since several international programmes already exist that allow scope for international cooperation, what will be the use of this conference? It is certain, and laudable, that very significant and large-scale efforts have been initiated by the United States, European countries such as France and Germany, and others through programmes such as Mission to Planet Earth and other Earth observation programmes, which promote substantial international cooperation. Several space platforms and sensors will be developed and deployed to provide valuable data relevant to our long-term understanding of the Earth system.

Similarly, the activities carried out by the World Climate Applications Programme and the International Geosphere-Biosphere Programme are aimed at increasing scientific knowledge of the causes and impact of climate change and of global, regional and local climates. There is an acknowledged need to support the efforts of developing countries to participate in these activities. This cannot be achieved purely through the participation of scientists and professional institutions, as the success of such a programme requires the participation of Governments. Although such scientific programmes require a very long-term approach, they are vital to future generations, as they show how delicate is the balance of the Earth's environment in the context of human activities. While initiatives such as Mission to Planet Earth have enormous potential, we must greatly increase awareness of such programmes and generate broad participation through local activities in various countries. This could be effectively promoted through the proposed UNISPACE. Clearly, these goals cannot be achieved through such forums as CEOS, IAF, COSPAR and Mission to Planet Earth. But the goals of other programmes, such as the International Geosphere-Biosphere Programme or Mission to Planet Earth, and the involvement of Governments and countries can be achieved through UNISPACE III.

Lastly, we have been asked if it might be useful to conduct a critical examination of the recommendations of the previous Conference and their translation into deeds

before embarking on preparations for a third conference. The subject of evaluating the implementation of UNISPACE 82's recommendations has received much attention over the past several years. COPUOS' Working Group of the Whole undertook a comprehensive evaluation of all the recommendations and drew its conclusions based on inputs not only from United Nations bodies but also from several international organizations.

All this background has been documented and should be taken into account in the preparatory process for the third UNISPACE. Indeed, certain basic planning parameters proposed for that conference have been based on a critical review of the experience of UNISPACE 82.

We have tried to address certain answers based on our experience. However, if we could hold collective debate in the Committee in a spirit of compromise and flexibility, in our opinion we could arrive at consensus and, on a consensus basis, answers to all these questions. If a third UNISPACE is not held, in our opinion space programmes will go downhill. Thus, we must take steps, as a community of space people, to correct the situation.

The questions that I have addressed are negative; we have tried to give positive answers. But there are positive arguments that have already been documented. A third UNISPACE has been mentioned by several nations, but the discussions have been very informal and ad hoc and sufficient time has not been allotted. We have often discussed the subject under "Other matters", even though this is a priority item for many developing nations.

We should reach some conclusion on the principle of holding the conference at an early date. 1995 happens to mark the fiftieth anniversary of the United Nations. Why can COPUOS not decide to hold a third UNISPACE in such or such a year? Then we could set about the task of finding solutions on a consensus basis in all earnest. There are subjects — such as disaster management, environment, the benefits of outer space and so on — that we could address.

Outer space is the common heritage of mankind. Today, when we are at a crossroads and lack for resources, and when space offers such exciting potential, is it not more than ever necessary for COPUOS to take the major — but in my opinion modest — step of holding a third UNISPACE? Why can we not set up a drafting group to discuss this collectively on a consensus basis at this Committee session?

Mr. Perek (Czech Republic): My remarks will deal with the question of holding a third United Nations conference on the Exploitation and Peaceful Uses of Outer Space (UNISPACE).

The highly important development of world-wide computer networks should, in our opinion, be taken into account in preparing for a third UNISPACE. What we have in mind are the Internet and World Wide Web networks, sometimes referred to as the "information superhighway". These networks are collections of thousands of local, regional and global networks linking by telephone lines millions of computers at universities, schools, corporations and other organizations. They enable users to share files, search for information in electronic dictionaries and library catalogues, peruse electronic books and journals, use data sets and computer programmes kept in archives, send and receive electronic mail, and use remote computers. Linked into the networks are, *inter alia*, the Space Science Data Center of the United States National Aeronautics and Space Administration, data from scientific space missions, and images from the European Southern Observatory or the Hubble Space Telescope. There are vast amounts of information on space applications. Practically anybody can access this information at the cost of the necessary telephone lines.

These networks have been established rather recently and they are developing very rapidly. The amount and extent of accessible information are constantly increasing at a very rapid pace affecting scientific and technical work at all institutions and at all levels. Those who benefit most are users who work in remote places.

The information flow plays an important role in space applications and will change in a substantive way the needs and *modus operandi* of users. Consequently, the need to discuss the interaction between space applications and the information superhighway should figure prominently in the justification for a third UNISPACE. It should also appear in individual agenda items of the conference. We feel that the emergence of the information superhighway is one of the most important reasons for holding a third UNISPACE.

We also propose, as we mentioned last year, to invite in due time the International Astronautical Federation, the Committee on Space Research, the International Astronomical Union and the International Society for Photogrammetry and Remote Sensing to prepare material for a background paper for a third

UNISPACE. These non-governmental organizations should also be invited to organize, in cooperation with the host country, a UNISPACE forum in the two or three days preceding the opening of the conference. The programme of the forum should deal with space applications as affected by information flow and with future perspectives of space and universe research. The reason for this is that maintaining or creating adequate conditions for research in space and on the ground is highly important for the further development of space activities.

Mr. Cruz (Portugal): The Portuguese delegation endorses the Scientific and Technical Subcommittee's report and highly commends its attempts to shed light on some matters, particularly the issues surrounding the item on space debris. On this specific item, the Portuguese delegation would like to recommend that the Subcommittee carry on with its work until a better formulation of this problem can be found. Until it is, any legal evaluation of this matter is somewhat premature.

The Portuguese delegation feels that there are some problems to be addressed before a third UNISPACE can be convened. These include a better definition of its objectives, the formulation of its financing framework and the choice of venue. In this context, it would seem that this is not the right moment to take a decision on this matter. This opinion does not preclude our delegation's remaining open to efforts to achieve consensus.

Mrs. Volokhova (Russian Federation) (*interpretation from Russian*): The Committee has already considered very important matters relating to the conquest of space, matters that require the constant attention of member States. One of these relates to the establishment of a single educational space, which would constitute an investment by the world community in its own future and an instrument for national unity and political harmony. Achievement of this objective is possible thanks to the development of tele-education techniques making use of both manned and unmanned space facilities. We consider that the creation of a single educational space through the development of tele-education would help in restoring harmony between different means of transmitting knowledge and in establishing internal links among them. It would help in strengthening peace and harmony among peoples through engendering a new perception of the world and greater understanding of common problems facing mankind; in developing an understanding of nature as a single interlinked whole; in forming a view of Earth as our common home; in awakening "planetary" thinking to solve moral problems, linked with an understanding of the individual's place in society and his relationship to himself and others, with a view to understanding the value of the individual and the extent of personal responsibility; in understanding the inherent value of nature and its significance for mankind; and in creating a global disaster-prevention culture. All these problems are closely linked with the tasks of the United Nations, whose fiftieth anniversary will be marked this year by all progressive people.

At the thirty-second session of the Scientific and Technical Subcommittee, held in February this year, my delegation presented one of our tele-education subprogrammes, "Lessons from space"; this is based on the unique educational potential of manned space facilities. Systematic implementation of the tele-education programme "Lessons from space" was begun in summer 1993 by members of the crew of the Russian space station Mir, V. Tsiblyev and A. Serebrov.

We think it would be useful today to give the Committee additional information about Russia's continued development of tele-education, and to describe the plan for establishing a satellite-television-computer system, TV-OBRAZKOM, for educational telecommunications. It will be developed on the basis of proposals from the Telekom Corporation and other organizations and enterprises linked with the Russian Federation's State Committee for the Defence Industry, and will take advantage of experience in the use of Russia's satellite-computer network Inform-Education, that has been set up at the Institute of Computerization of the Ministry of Education.

The plan will be implemented with the investment of resources generated by the conversion of military-use satellite systems for education purposes and for the development of technologies for television-signal data transmission via the Inform-Education network. The development of a television-computer communications satellite system will make it possible to create a qualitatively new, highly developed information environment in Russia, designed to meet the needs of people of diverse professions, ages and interests. It will ensure: equal access to education of all kinds at an international standard for the inhabitants of all regions of Russia, even the most remote; the use of international educational programmes by educational institutions; the transmission to all parts of Russia of study and teaching materials, television courses from the world's leading universities, including Cambridge, Harvard and the Sorbonne; the holding of regional, all-Russian and

international competitions; the broadcast of Russian educational programming to other countries, with simultaneous interpretation into any language; and the development of a radically new methodology for providing a complete education to gifted students and to children with special educational needs, such as invalids, children with developmental or health problems, and children in orphanages, boarding schools, special schools and so forth.

Through this satellite-television-computer system for educational communications, a large number of users will be able to receive television, radio and computerized teaching programmes in the areas of culture, the environment, health care, agriculture, the history of Russia and other countries, economics, psychology, sociology, teacher training including family teaching and group dynamics, public speaking, etiquette, civics, political science, basic democracy, preparations for elections and other subjects.

The plan for creating the TV-OBRAZKOM satellite-television-computer system for educational communications includes the development of two branches of the information environment: a television-educational service based on satellite transmission and reception; and a system for transmitting digital data, via television signals, to computers. Studies have shown that by developing the first branch of the information environment through satellite-television broadcasting, and by leasing only one single-transmitter satellite, all regions of Russia would have access to two 24-hour general education television channels: 48 hours of broadcasting a day. At present, of course, this exceeds the needs of the regions, so we should note that data transmission would be possible not only to all regions of Russia, but beyond them as well.

Developing the second branch — data transmission to computers — would make it possible to transmit text, graphical and audio data for teaching materials, computer-teaching programmes, scientific and academic journals, pedagogical databases, information on teaching experience, management and administrative documents and so forth. Apart from the television receiving equipment, implementing this technology requires TV-INFORM receiving facilities linked to computers. This system would also make it possible to store data and transmit it to and from institutional and other subscribers within Russia and in other countries. Security for the large quantity of data in the network would be assured through a detailed regimen for gathering, processing and uploading data to the network. An information-analysis centre will coordinate the development and servicing of transmission programmes.

The plan for creating the TV-OBRAZKOM satellite-television-computer system for educational communications should be implemented in four interlinked stages during the period 1995 to 2002. During that time, we plan to establish two general-education television channels that would be received at satellite ground stations, along with receiving facilities for downloading data to computers, via television signals, at some 5,000 educational institutions and other subscriber points. We plan also to launch a special retransmission satellite for general-education television programmes, in order to ensure direct reception of television broadcasts and to permit work on developing both the content and the technology for data preparation.

We have prepared two brief material aids which explain the subprogramme "Lessons from space" and the computer system for the educational communications TV-OBRAZKOM, which are available here in the Committee's meeting room.

In informing the thirty-eighth session of COPUOS on the basic areas of development of tele-education in Russia through the use of space technology, the Russian delegation once again declares its readiness to maintain a dialogue and develop cooperation with interested countries, including the developing countries, and with national and international organizations that are engaged in space activities, with a view to determining specific areas of cooperation in terms of the use of space for educational purposes. In particular, this would entail building direct "tele-bridges" and holding "Lessons from space", developing forms of tele-education for different categories of users through satellite links and computer communications, and refining the implementation mechanisms and sources of funding for these programmes.

The delegation of the Russian Federation believes that the use of the potential of space technology for education, and particularly in the developing countries, does not yet occupy its due position in the work of the Committee. We feel that focusing United Nations attention on the problems of developing tele-education through the use of space technology for these purposes and identifying such problems for priority consideration by member States will promote the further development of the use of outer space for peaceful purposes, for the benefit and prosperity of all mankind.

Mr. Moore (South Africa): The South African delegation would like to take this opportunity to reiterate

its position on the issue of space debris and perhaps to expand slightly thereon. At the thirty-second session of the Scientific and Technical Subcommittee, much time was allocated to the item of space debris. It is quite clear that the matter of space debris is of concern to all member States. This is specifically a result of mankind's outer space activities and their possible negative consequences not only with regard to the outer space environment, but also to spacecraft. My delegation firmly supports the recommendations and multi-year work plan adopted by the Scientific and Technical Subcommittee.

We are pleased to note that some space agencies, as well as the International Telecommunication Union, have introduced on a voluntary basis several prevention and protection measures and have adopted practices to minimize the creation of space debris.

The volume of traffic in outer space is increasing, need we say, and this suggests that the issue of space debris should become of ultimate concern to all of us. At the thirty-sixth session of COPUOS, the Chairman said:

> "The time has come for this body to fulfil its responsibility to the international community by beginning discussions on what steps should be taken to address this growing problem." (*A/AC.105/PV.579, p. 21*)

The South African delegation could not agree with him more.

This Committee, under his guidance, has always demonstrated foresight and dealt in a timely manner with matters relating to the peaceful uses of outer space. Today, the implications of space debris hang as the proverbial sword of Damocles over mankind's ability to maintain environmental integrity in outer space. It is against this background that the South African delegation wishes to refer this Committee to the recommendations made by several delegations that the issue of space debris be included as a formal item on the agenda of the Legal Subcommittee.

Mr. Lee (Republic of Korea): Under agenda items 5 and 7, let me begin by placing on record my delegation's sincere appreciation to Mr. John Carver, the former Chairman of the Scientific and Technical Subcommittee, who relinquished his chairmanship following this year's session. His 25 years of dedicated service to the work and objectives of this Committee have provided an excellent foundation for attaining its goals.

I would like to emphasize the important role of the United Nations Programme on Space Applications in promoting international and regional cooperation in space activities. In particular, as we have mentioned in our general statement, we are very grateful to Mr. Abiodun, the well-known Expert on Space Applications, and his staff for offering us their valuable support and expertise in creating the Asia-Pacific Satellite Communication Council (APSCC). The APSCC secretariat has already been established in my country. The scope of its work includes organization of expert groups on major issues; information collection, publication and distribution; the development of long-term regional projects; and the organization of workshops, seminars and training courses. All of these aim at enhancing regional cooperation on space applications in the area of satellite communications and broadcasting. I am confident that in fulfilling its roles the APSCC will continue to maintain close association with the related United Nations bodies.

My delegation notes with satisfaction the substantial progress achieved at this year's session of the Subcommittee on the agenda item on space debris. The past two years' work of the Subcommittee attests to the international community's growing awareness of the urgency of the issue of space debris. My delegation welcomes the adoption of the multi-year work plan by the Subcommittee, which will undoubtedly help to facilitate its consideration of space debris.

While my delegation understands the logic of, and shares, the view that a firm scientific and technical grasp of the space debris environment and related problems should be obtained before the issue is taken up by the Legal Subcommittee, it is my delegation's view that conscientious efforts should be made to speed up the Scientific and Technical Subcommittee's consideration of this agenda item and to promote general understanding of this issue. The relevant data should be made accessible to all interested researchers worldwide. International cooperation should be expanded to tackle this growing problem affecting the entire international community.

I should like to make some further comments on the issue of a third UNISPACE, which was extensively dealt with by the Working Group of the Whole. An informal, open-ended drafting group was set up by the Working Group with a view to producing a report on the matter.

I commend the work done by this Working Group of the Whole, and I believe that it will contribute significantly to our discussion of this important subject.

Having said that, I should like to reiterate my delegation's support for the holding of such a conference in the near future. The tremendous changes that have occurred on the global political and economic scene in general since 1982, as well as the scientific and technological advances in space activities, make it necessary to hold a high-level policy-oriented conference.

Outer space is no longer an arena for cold-war confrontation, and it should no longer be an arena to be monopolized by a few scientifically advanced countries. It has emerged as a valuable sphere for the furtherance of all human well-being and prosperity. The time has therefore come to convene a third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) to come up with action-oriented programmes beyond the rhetoric. That conference will be an opportunity to build upon what has been achieved on this the last frontier for mankind over nearly half a century and to provide the vision and practical strategies to utilize outer space for the betterment of humanity in the coming millennium.

In particular, my delegation shares the view, expressed by the representative of the Czech Republic, that the idea of an information highway should provide important justification for UNISPACE III. The envisaged role of space science and technology in realizing an information superhighway and the profound and far-reaching impact it could have on all facets of human life will bring to the fore all scientific, legal and economic issues related to the exploration of outer space.

In my delegation's view, the ever-increasing environmental aspect of space technology — by which I mean not only the Earth's environment but also that of outer space — should be another important dimension of UNISPACE III. I hope that at the current session of the Committee and at next year's session of the Scientific and Technical Subcommittee there will be meaningful discussion in this regard so that recommendations on the matter may be made to the General Assembly as soon as possible.

In conclusion, my delegation supports the submission of the report of the Scientific and Technical Subcommittee (A/AC.105/605) to the General Assembly for its approval.

Space at the service of the environment — ERS-1 and ERS-2

The Chairman: As members of the Committee may know, ERS-1, in cooperation with the United Nations, has provided free data to African countries. This is a very important function, and we express the hope that ERS-2 will provide important data for the benefit of other countries.

We shall give the necessary attention to the important presentation that is about to be made by Mr. Guy Duchossois of the European Space Agency.

Mr. Duchossois (European Space Agency) made a presentation to the Committee.

The Chairman: I should like to express the Committee's sincere thanks and congratulations to Mr. Duchossois of the European Space Agency for his very interesting presentation. We have seen that there are applications, and we appreciate very much the Agency's contribution in this field.

The meeting rose at 5.30 p.m.